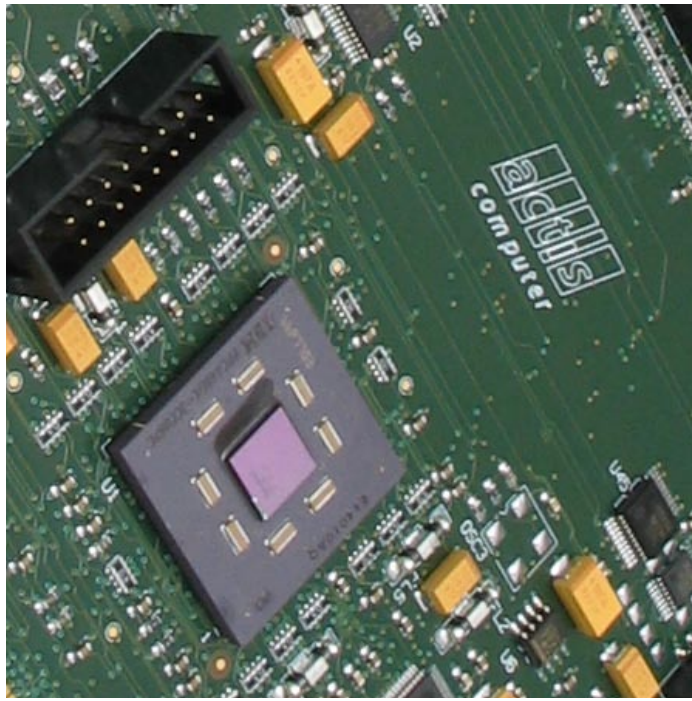
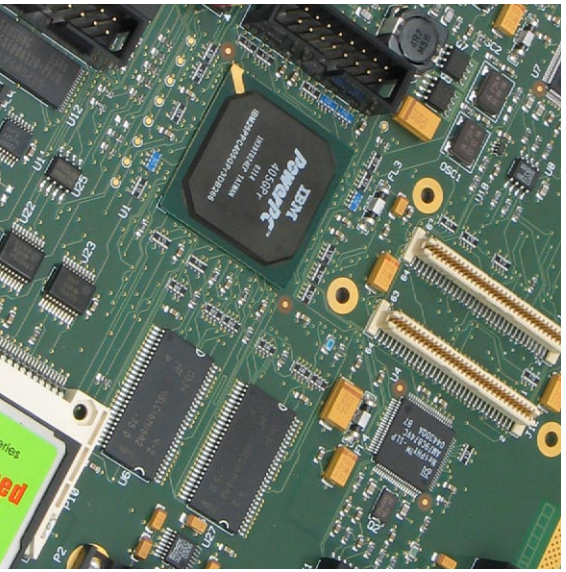
Selector Guide 2009





Board Level Products Made
For Embedded Systems Solutions

actis computer

Introduction

Dear Reader,

“Since 1991, ACTIS has been guided by a simple philosophy; offering our customer simple but highly configurable and expandable Single Board Computer Solutions that can be tailored cost effectively to most diverse application needs. This simple promise has earned us a loyal customer following whose guidance also helped shape our product offering”.

This text appeared for the first time in the introduction of our Selection Guide of 2000... And it is still very much relevant even if many things have changed in the last 10 years. Since we have introduced the first PowerQUICC VMEbus Single Board Computer, ACTIS Computer has designed a large number of standard or custom PowerPC SBCs. With our strong expertise on this processor architecture we have created several Industry first introduction like our 3U cPCI PowerQUICC 3 rugged SBC and our line of PowerPC COM Express processor mezzanine modules compatible with the new PICMG COM.0 specification.

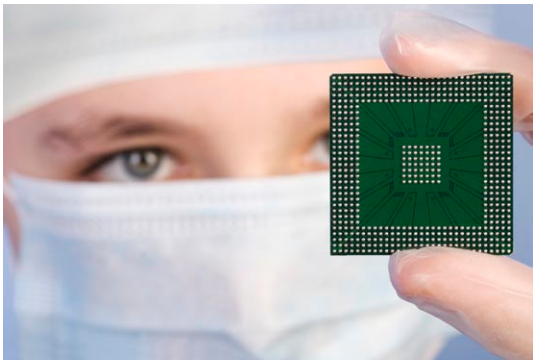
As you will see in this selector guide, it is now possible to make an integration from a VMEbus PowerPC platform to a cPCI, or a COM Express platform with the same hardware architecture and therefore without expensive software redesign! This will help you to capitalize on your research investment and to choose the best form factor for each application.

Even if we are living in a world dominated by the PC standard, the PowerPC solutions offer real advantages which make it the preferred choice in most critical applications, where reliability is a priority, like Aerospace, Communication, Military, Transportation, Power Plant, Security, etc... It is for this reason that most of our products are available in extended temperature range and some available in conduction cooling version.

We hope that our COTS products can be useful to you, but if you don’t find the solution you are looking for, please contact us, and we will be delighted to design it for you.

Marc Marinello
CEO & Marketing Director

PowerPC Specialist



When PowerPC became available for embedded application from Motorola and IBM, ACTIS Computer engineers have started using them for custom designs and COTS products.

Thanks to their low power dissipation, PowerPC architecture can be used with passive cooling only, and therefore were ideally suited for embedded system that must operate 24h/24h, 7 days per week, 365 days per year, and where the failure is not an option!

For more than 10 years ACTIS Computer has developed an unique expertise in PowerPC Single Board Computer for both COTS products and custom designs for worldwide leading customers in demanding markets like Transportation, Aerospace, Security, Process Control, Power Plant, Telecommunication, Military, Research, Education, etc…

So please, don't hesitate to contact us for your next PowerPC project!

	freescale PowerPC						AMCC PowerPC		
	8260	8270	8248	8347E	8560	8545E	405GPr	440GX	460EX
VSBC-6862	✓								
VSBC-6872		✓							
VSBC-6848			✓						
VSBX-6560					✓				
VSBX-6460									✓
CSBX-3545A						✓			
XCOM-9347				✓					
XCOM-9460									✓
KSBC-0405							✓		
EBSX-4440								✓	

PowerPC Board Level Products Overview

Partnership

ACTIS Computer is a proud member of semiconductor alliances for the PowerPC architecture. AMCC and Freescale Semiconductors offer a large range of PowerPC processors dedicated to embedded designs.

ACTIS Computer gains access to the latest technologies by introducing complex Single Board Computer based on the newest processors available on the market.

Product Selection Matrix

VMEbus Single Board Computer

Model	VSBC-6862	VSBC-6848	VSBC-6872	VSBX-6560	VSBX-6460 NEW
CPU Manufacturer	FREESCALE	FREESCALE	FREESCALE	FREESCALE	AMCC (IBM)
Processor (core)	MPC8260 (603e)	MPC8248 (603e)	MPC8270 (603e)	MPC8560 (e500)	PPC460EX (440)
CPU Data bus	64 bits	64 bits	64 bits	64 bits	64 bits
FPU	yes	yes	yes	no (Single precision APU)	IEEE-754 DP FPU
Frequency	200 MHz	400 MHz	450 MHz	833 MHz	600 MHz - 1.066 GHz
Technology	CMOS 250 nm	CMOS 130 nm	CMOS 130 nm	CMOS 90 nm	CMOS 90 nm
L1 Cache	16K + 16K	16K + 16K	16K + 16K	32K + 32K	32K + 32K
L2 Cache	no	no	no	256 kB	256 kBytes
Performance	380 MIPS	760 MIPS	855 MIPS	1925 MIPS	2000 MIPS
Flash	16 MBytes	16 MBytes	16 MBytes	16 MBytes	16 MBytes
DRAM	128 MB SDRAM PC/66	128-256 MB SDRAM PC/100	128 MB SDRAM PC/100	up to 1GB DDR/333 SODIMM	up to 1 GB DDR2/533 SODIMM
EEPROM	8 kBytes	8 kBytes	8 kBytes	8 kBytes	8 kBytes
SRAM	1 MByte	1 MByte	1 MByte	1 MByte	1 MByte
RTC / NVRAM	yes / 32 kB SRAM	yes / 32 kB FRAM	yes / 32 kB SRAM	yes / no	yes / 32 kB FRAM
Form factor	VME 6U	VME 6U	VME 6U	VME 6U	VME 6U
Bus type	VME 32 (A32 / D32 master/slave)	VME 32 (A32 / D32 master/slave)	VME 32 (A32 / D32 master/slave)	VME 32 (A32 / D32 master/slave)	VME 64 (A64 / D64 master/slave)
User's FPGA	no	no	no	no	Altera Cyclone 3
HDLC ports	4xRS-232/422/485/V.35 HDLC	2xRS-232/422/485/V.35 HDLC	4xRS-232/422/485/V.35 HDLC	4xRS-232/422/485/V.35 HDLC	no
UART	2xRS-232 UART	2xRS-232 UART	2xRS-232 UART	1xRS-232 UART	2xRS-232 UART
USB	no	1 x USB 2 full speed	no	no	2 x USB 2 hi-speed
I2C / SPI	no	yes	yes	yes	yes
Encryption	no	yes	no	no	yes
Ethernet	2xFast Ethernet	2xFast Ethernet	3xFast Ethernet	2xGigabit + 1xFast Ethernet	2xGigabit Ethernet
Graphic controller	no	with PMC PVGA-1722	with PMC PVGA-1722	with PMC PVGA-1722	with PMC PVGA-1722
PMC modules	no (4 IndustyPack slots)	2x 32-bit up to 33 MHz	1x 32-bit up to 66MHz	1x 64-bit up to 66MHz	2x 32-bit/66 MHz + 1x XMC
S-ATA	no	2x ports S-ATA	2x ports S-ATA	2x ports S-ATA	1x port S-ATA2
NAND Flash	no	Compact Flash socket	Compact Flash socket	Compact Flash socket	1GByte NAND Flash
Power max	5V @ 3A	5V @ 2A	5V @ 2.5A	5V @ 3.9A	5V @ 2A
Availability	now	now	now	now	1Q2009

COM Express, CompactPCI and Standalone Single Board Computer

Model	XCOM-9347	XCOM-9460 NEW	CSBX-3545	KSBC-0405	ESBX-4440
CPU Manufacturer	FREESCALE	AMCC (IBM)	FREESCALE	AMCC (ex-IBM)	AMCC (IBM)
Processor (core)	MPC8347E (e300)	PPC460EX (440)	MPC8545E (e500)	PPC405GPr (405)	PPC440GX (440)
CPU Data bus	64 bits	64 bits	64 bits	64 bits	64 bits
FPU	yes	IEEE-754 DP FPU	Dual precision APU	no, code compression	no
Frequency	400 MHz	600 MHz - 1.066 GHz	1.2 GHz	266 MHz	667 MHz
Technology	CMOS 130 nm	CMOS 90 nm	CMOS 90 nm	CMOS 180 nm	CMOS 130 nm
L1 Cache	32K + 32K	32K + 32K	32K + 32K	16K + 16 K	32K + 32K
L2 Cache	no	256 kBytes	512 kBytes	no	256 kBytes
Performance	756 MIPS	1200 MIPS	2760 MIPS	404 MIPS	1334 MIPS
Flash	8 MBytes	8 MBytes	8 MBytes	8 MBytes	up to 32 MBytes
DRAM	DDR2/200 SODIMM up to 1 GB	DDR2/533 SODIMM up to 1 GB	DDR2/400+ECC up to 1 GB	64 Mbytes SDRAM PC/133	DDR/33+ECC DIMM up to 1GB
EEPROM	8 kBytes	8 kBytes	8 kBytes	8 kBytes	no
SRAM	no	no	no	128 kBytes	no
RTC / NVRAM	yes / 8 kBytes	yes / 8 kBytes	yes / yes	yes / no	yes / 32 kBytes
Form factor	COM Express (95x95 mm)	COM Express (95x95 mm)	CPCI 3U	Embedded board (161x161 mm)	Extended EBX
Bus type	32-bit PCI	32-bit PCI + x4 PCIe	32-bit PCI	16-bit local bus	64-bit 66 MHz PCI-X Bus
User's FPGA	no	no	Cyclone 2	Cyclone 3 with MPGA-10xx	Cyclone 3 with MPGA-10xx
HDLC ports	no	no	no	no	no
UART	2xRS-232 UART	2xRS-232 UART	2xRS-232 UART	1xRS-232 UART	2xRS-232 UART
USB	2 x USB 2 hi-speed	2 x USB 2 hi-speed	no	no	no
I2C / SPI	yes	yes	yes	yes	yes
Encryption	yes	yes	yes	no	no
Ethernet	2xGigabit Ethernet	2xGigabit Ethernet	2xGigabit Ethernet	1xFast Ethernet	2xGigabit + 2xFast Ethernet
Graphic controller	yes 2D/3D RGB / LVDS / LCD	yes 2D/3D RGB / LVDS / LCD	no	no	no
PMC modules	2 x 32-bit/66 MHz on carrier	2 x 32-bit/66 MHz on carrier	no (on-board user's FPGA)	1 x Mini PMC 32-bit/66 MHz	1 x Mini PMC 32-bit/66 MHz
S-ATA	2x S-ATA ports	1x S-ATA2 port	no	2x S-ATA ports	2x S-ATA ports
NAND Flash	1GByte soldered NAND Flash	1GByte soldered NAND Flash	1GByte soldered NAND Flash	Compact Flash socket	Compact Flash socket
Power max	tba	tba	tba	3 W (6-24 V /DC)	9 W
Availability	now	now	now	now	now

Introduced as a possible alternative to the VMEbus Systems in 1995, CompactPCI taking the best of the PCI bus standard and VME Eurocard form factor standards to quickly establish a new solution which was at first very attractive to Telco manufacturers.

However after about 10 years of experience, the Telco companies switched to newer, larger standard: AdvancedTCA (ATCA) and 6U cPCI boards lost their biggest available market. At that time most 6U cPCI SBCs were designed around the Intel CPU line (may be because the PICMG consortium was mainly composed by PC manufacturers?). Today, the CompactPCI find a new market for smaller and more rugged 3U form factor in military, aerospace, transportation, and others demanding markets.

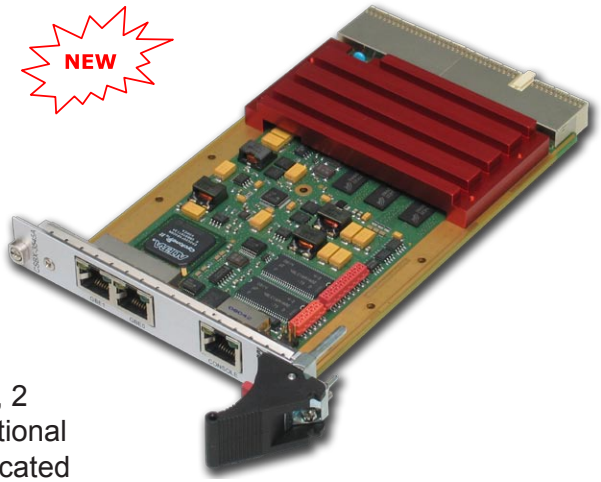
These customers require rugged, reliable, low power products which could perfectly use the advantages of PowerPC CPU, which were already design-in in many similar applications using VMEbus boards.

Additionaly, the 3U cPCI can offer a real 32/64 bits bus on the 3U form factor which was not the case of the VME 3U limited to 16 bits.

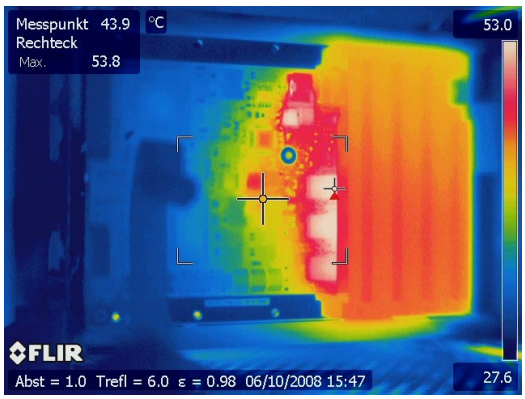
CSBX-3545A

GIGABIT ETHERNET · Cyclone II FPGA

The CSBX-3545A is designed with rugged application in mind: no connections, no switches and mezzanines modules.



However this board provides all the basic functions required in a modern Single Board Computer: a powerfull 1.2 GHz PowerPC CPU, 1 GByte of soldered DDR2+ECC SDRAM, 1 GByte of soldered NAND Flash, 2 Gigabit Ethernet ports, and an optional reconfigurable FPGA with its dedicated memory for customization of the board without the need of a PMC mezzanine.



The design has required intensive simulation and a carefully analyzed 14 layers PCB, to ensure perfect operating conditions even in the toughest environment. A proprietary massive heatsink will ensure full performance operation in convection mode even in extended temperature range. For extreme applications, a conduction cooled version with I/O on the rear connector is also available.

This product will fit a lot of applications in demanding market like Military, Aerospace, Transportation, Security, Process Control, etc...

COM EXpress & Standalone

Low Power And Modular Small Form Factor Processor Modules

For more than 10 years, there were several attempts from various embedded board manufacturers to offer a simple solution reducing the design cycle time for new embedded computer system. These computer modules were available in different proprietary form factor, none of them (except PrPMC) were supported by an official open standardisation organization: first to list some of them DIMM-PC, E2BRAIN, ESM, Plug-N-Run, and the last ones ETX, XTX, etc…
With the introduction of the modern COM Express standard, fully specified by the PICMG organisation, this industry has now a solid foundation to build a large line of compatible “Computer On Module” SBC.
One of the biggest advantage of this new standard is the support of the most up to date buses without any limitation to a specific CPU architecture. Therefore, it is possible to offer on the same hardware platform different processor series without any restriction. While most of the products introduced in COM Express are based on Intel architecture (due to its PICMG filiation), ACTIS Computer has decided to put its PowerPC expertise behind a line of interesting PowerPC COM Express modules to bring to this market the usual advantage of these CPU in the COM Express form factor.

XCOM-9347

The XCOM-9347 was the first COM Express Module designed around the PowerPC Architecture introduced at the Embedded World 2007 exhibition in Nuremberg.

The XCOM-9347 which supports a graphic controller is also a perfect choice for application with Man Machine Interface (MMI), where it has all the advantage of a PC application at much lower power dissipation.

It is also a perfect fit with the Linux RTOS, which complement the XCOM-9347 with a fast open software environment supported by a wide community of developers.

XCOM-9460

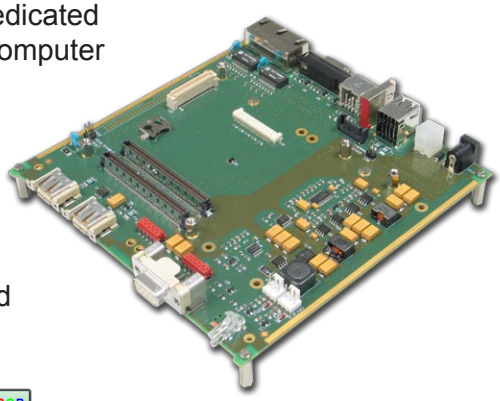
NEW

One year after the XCOM-9347, ACTIS Computer has introduced a second PowerPC COM Express based on a new AMCC (IBM) PowerPC CPU: PPC460EX with CPU clock up to 1.066 GHz and a powerful double precision IEEE-754 FPU (up to 2.0 GFLOPS) for more intensive computation application.

This new COM Express module keeps a similar functional architecture that the first one, therefore it is possible to select the module which fits the best application without having to rewrite all the software.

KCAC-0320

While the logical use of the COM Express module is to develop a dedicated carrier board with all specific I/Os to the target application, ACTIS Computer is very flexible to manage such project through our custom product division,it is some time useful for prototyping, or small production series to have a convenient compact carrier with possible extension through COTS PMC modules.
This is exactly the function of our KCAC-0320 which will accommodate a compact (or a basic) COM Express module as well as two PMC modules. In addition this carrier board provides all required power supply regulators and I/O connections.



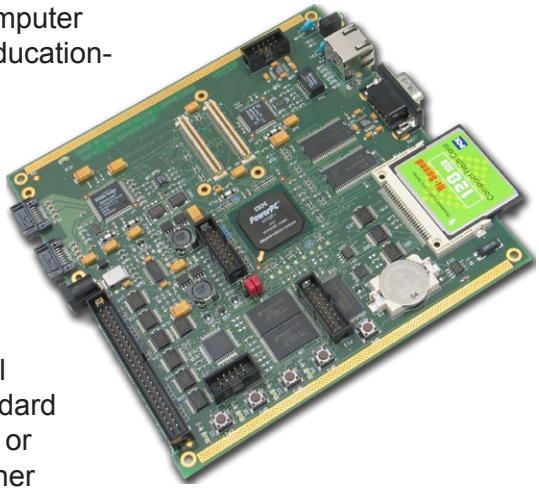
XBOX-9347

For development, or for compact integration, the XBOX-9347 is a perfect solution ready to run in less than 10 minutes with a PC host and our complete GNU/LINUX development package (see software section).

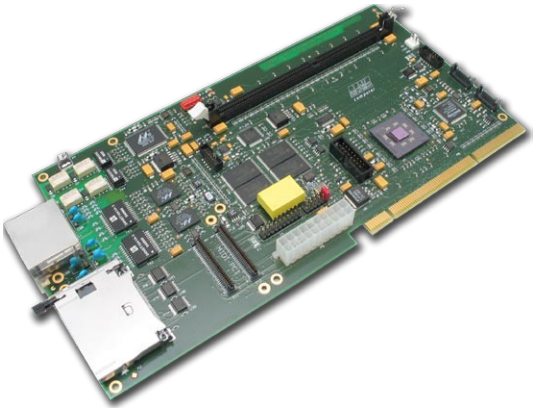
The XBOX-9347 series needs only a single power supply (12 V DC), a serial cable and one network cable to connect to a workstation, and you are ready to write your application. It includes all popular ports like Gigabit Ethernet, S-ATA, VGA, USB2.0, etc…

KSBC-0405

Designed as a low cost but complete standalone Single Board Computer LINUX platform, the KSBC-0405 find a very good acceptance in educational applications where its straightforward architecture offers a good introduction to the embedded computer world.
Including all basic functions required in a Process Control Computer like Ethernet, serial port, CompactFlash slot, Serial-ATA disk controller; this AMCC (IBM) PowerPC PPC405GPr CPU supports SDRAM, FLASH, and SRAM with battery backup to run complete application developed with companion Linux Development kit.
On-board switching power supply simplifies integration, and a local 16-bit peripheral bus is available through a DIN41651 (HE10) standard flat cable connector will further simplify interfacing with relay, opto, or analog custom board. Finally, a mini-PMC slot gives access to higher performance I/O, or to customization with our Altera Cyclone 3 FPGA mini-PMC (see page 10).



ESBX-4440



Designed as an alternative to the INTEL motherboard architecture found in all PC, the ESBX-4440 is based on an extended EBX form factor and can easily be integrated in a 1U 19” rack with two PCI card slots for extension.

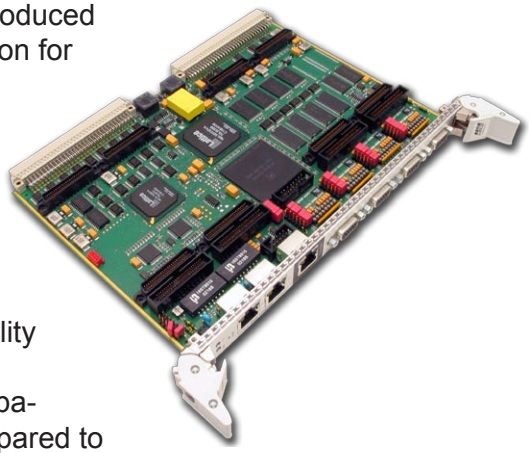
This SBC builds around the AMCC (IBM) PPC440GX processor includes two Gigabit Ethernet ports and two Fast Ethernet ports with specific bypass logic useful in secured network bridges or router.

Since its creation in 1981, the VMEbus concept has been the most popular bus standard in the embedded market for professional applications. With a strong presence in industrial applications, transportation, power plant, military and aerospace equipment, security control, research and education, among others; the VME bus is still very active more than 25 years after the first board was produced. Today, several newer bus concepts are fighting to capture a significant share of this market, however most VME users would like to keep their equipment running, and want to avoid a costly complete redesign of their systems!

Since the processor technology has tremendously improved during all these years, and some older 68k or PowerPC are now obsolete, VME users are facing the dilemma of updating their rack without modifying existing dedicated I/O board which are still valid. This is why ACTIS Computer has introduced a complete line of VME boards taking advantage of the latest processor technology but remain fully compatible with the legacy VME32 and VME64 architectures.

VSBC-6862

FAST ETHERNET HDLC IP Mezzanines

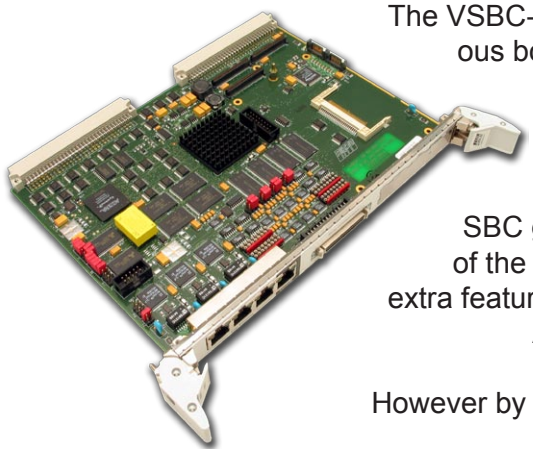


The VSBC-6862 was the first board introduced by ACTIS Computer as a logical evolution for the very successful Motorola MVME-162.

By using a PowerPC CPU (PowerQUICC 2) at 200 MHz instead of a 50 MHZ 68040, the VSBC-6862 brings to the user a big performance improvement, while still offering compatibility with its 4 IP Modules slots.
Better communications and network capabilities give advantage to this SBC compared to the older products that it replaces today.

VSBC-6872

FAST ETHERNET HDLC PMC Mezzanines CF SERIAL ATA



The VSBC-6872 is a further evolution of the previous board for user's that prefer PMC mezzanine extension instead of IP module.

With a second generation PowerQUICC 2 at 450 MHz this powerful SBC gives more than twice the performance of the VSBC-6862, and includes many useful extra features like a 3rd Fast Ethernet port, two S-ATA ports and a CompactFlash socket.

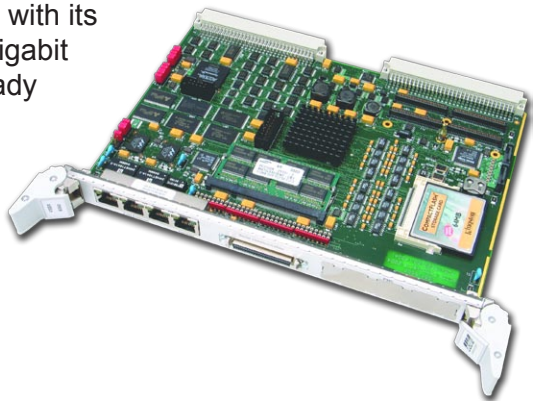
However by taking advantage of new component, it is much cheaper than its predecessor.

VSBX-6560

GIGABIT ETHERNET · HDLC · PMC Mezzanines · CF · SERIAL ATA

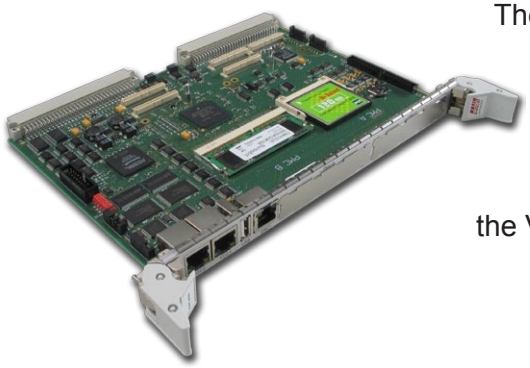
The VSBX-6560 will bring again to the user a step on performance with its PowerQUICC 3 CPU running at 833 MHz, but will also include 2 Gigabit Ethernet ports while still supporting all the same other feature already present in the VSBC-6872.

The similar front panel and the full functional compatibility of both boards will help the user to select the best one for each application.



VSBC-6848

FAST ETHERNET · HDLC · PMC Mezzanines · CF · SERIAL ATA · USB · SFC



The VSBC-6848 is certainly the VME SBC which offers the best price and performance ratio available on the market.

Thanks to its third generation PowerQUICC 2 running at 400 MHz, this SBC offers a confortable level of performance with a lower power dissipation and with an attractive price which give to the VME user's a very good reason to update its equipment beside the replacement of obsolete boards.

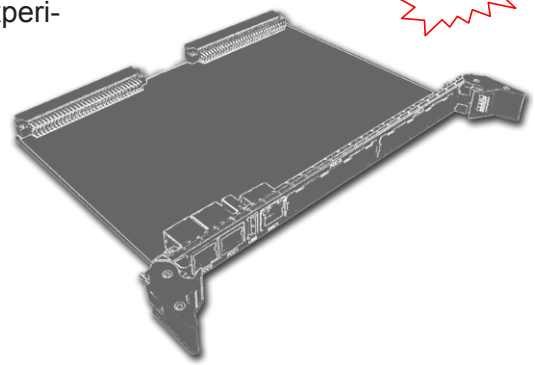
VSBX-6460

VME64 · GIGABIT ETHERNET · PMC Mezzanines · XMC Mezzanines · SERIAL ATA · USB · SFC · Cyclone III FPGA

NEW

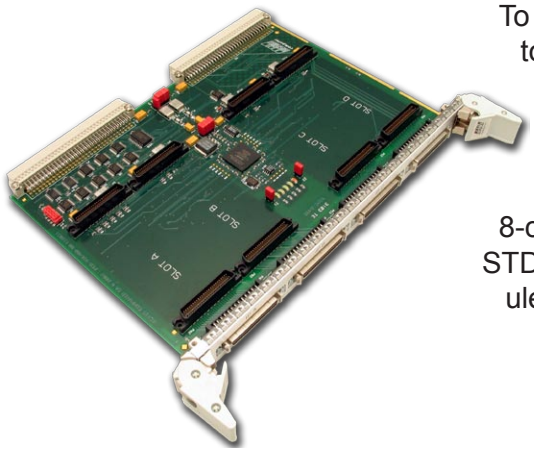
The VSBX-6460 is our latest VME SBC taking advantage of our experience in PowerPC computer and of the feature of the new AMCC (based on IBM design) PPC460EX processor which is available up to 1.066 GHZ and include a double precision IEEE-754 Floating Point Unit (2.0 GFLOPS).

This board includes many useful options like a S-ATA disk support or a Cyclone 3 user reconfigurable FPGA with FMC I/O module for a modular interface design.



VIPC-6400

IP Mezzanines



To achieve a higher integration in VME Systems, it is very convenient to use in a single VMEbus slot different type of I/Os. With the VIPC-6400, it's possible to support up to 4 different IP Modules on the same board.

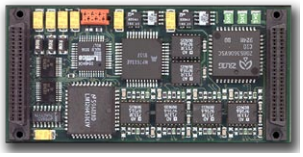
As an example, it is possible to have an ADC/DAC module, an 8-channel serial communication controller, a dual resolver and a MIL-STD-1553 bus controller on one VIPC-6400. The small size of IP Module will therefore reduce the numbers of VME I/O board required and the total system cost.

Mezzanines

With the introduction of Single Board Computer with higher integration, the need of additional VME peripheral boards was reduced significantly. Integration of the memory, the network controller and the disk controller not only reduced the boards count and system cost, but also has offered better performance by using faster local buses instead than the VMEbus backplane.
This trend was further extended by adding I/O mezzanine modules which give to the user the possibility to customize his boards without the need additional and expensive VME I/O boards. Several proprietary solutions were introduced with a limited success before the availability of two standardized concepts: IP Modules (VITA 4) for simple I/O extension and PMC Modules (IEEE 1386.1-2001) for more sophisticated intelligent functions taking advantage of the widely available PCI bus interface.
ACTIS Computer supports both mezzanine concepts, and even builds a hybrid proprietary version taking advantage of the size of the IP module with the interface of the PMC; the mini-PMC which is available on our standalone board.

IndustryPack Modules

ACTIS Computer is supporting a large range of IndustryPack modules. These mezzanines were a very successful peripheral extension concept used in conjunction with the Motorola MVME carrier boards.

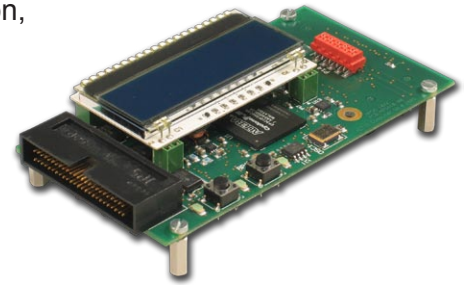


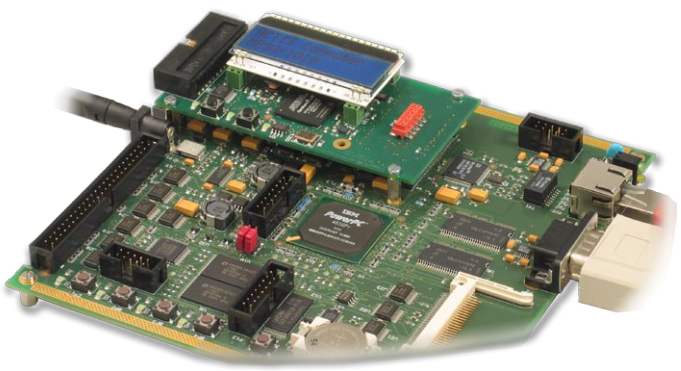
These modules are available for analog acquisition systems, network controller, industrial input/output, serial communication controller, etc...

Based on its long term availability program, ACTIS Computer is still supplying most of these references. Please contact your representative agents for actual availability and delivery conditions.

Mini-PMC Modules

Based on the subset of the PMC specification, the mini-PMC mezzanine offers within a smaller form factor the same bus architecture and performance. This mezzanine concept is compatible with the KSBC-0405 and the ESBX-4440 standalone SBC.





The MPGA-1010 as the first member supports a reconfigurable Altera Cyclone 3 FPGA with onboard LCD display and a 3-axis accelerometer sensor.

PCI Mezzanine Card (PMC)

PADC-1816

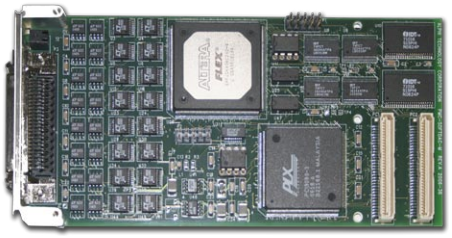
Eight channels with differential input 16-bit Analog/Digital Converter with on-board TMS 320C32 DSP. This module supports a sampling rate of 100 kSps with a programmable gain amplifier of 1, 2, 4 and 8 and is fully software configurable.

Features	PADC-1816
Function	8x 16-bit ADC
DSP	TMS320C32
Sampling Rate	100 kSps
Input mode	Differential
Programmable Gain	1, 2, 4, 8
Firmware	Configurable

PDAC-1916

Sixteen channels unipolar and bipolar 16-bit Digital/Analog Converter with on-board DSP. This fully programmable DAC is very flexible with a settling time of 2 µs in the range of 0 to 5 V, with a 0 V output voltage after reset.

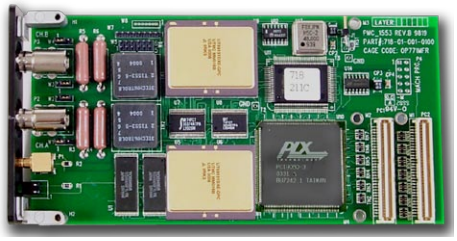
Features	PDAC-1916
Function	16x 16-bit DAC
Settling time	2 us, 0-5 V range
Outputs mode	Unipolar, Bipolar
Generation modes	manual, simultaneous, from flash
Output volage @ reset	0 Volt



PMIL-1553D and PMIL-1553P

Two PMC version offer single or dual redundant MIL-STD-1553 controller with either DDC or UTMC devices. Both support BC, RT and BM operating modes with a local memory of 128 kBytes.

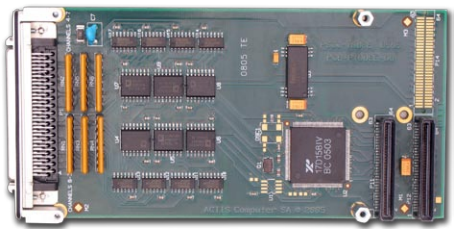
Features	PMIL-1553
Function	Redundant MIL-STD1553
Channels #	single, dual
Controller	DDC, UTMC
Supported modes	BC, RT, BM
Local Memory	128 kByte



PSCC-1008E

8-channels serial communication controller with galvanic isolation. Based on 5G 16C550 UART device, this controller supports both half and full duplex transmission mode with a RS-422/RS-485 line interface. Temperature grade -40/+85 °C.

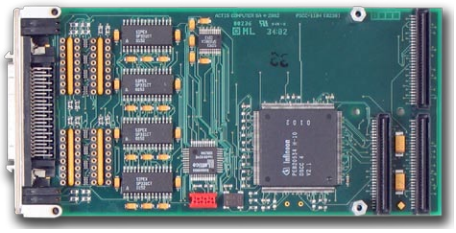
Features	PSCC-1008E
Function	Octal UART
Opto-isolation	yes, 2.5 kV
RS-232 signals	N.A.
RS-422/485 signals	TxD,RxD
On-board termination	yes
Rear I/Os	yes



PSCC-1028

Universal octal UART communication controller with software selectable RS-232 and RS-422/RS-485 line interface. Both half and Full-duplex transmission modes are supported. Temperature grade -40/+85 °C.

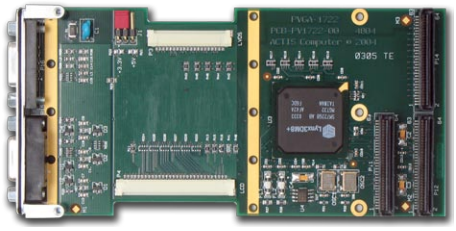
Features	PSCC-1028
Function	Octal UART
RS-232 signals	TxD,RxD,RTS, CTS,DTR,DCD
RS-422/485 signals	TxD,RxD
Duplex mode	Full and Half
On-board termination	yes
Rear I/Os	yes



PVGA-1722

2D/3D graphics controller for embedded applications. Based on 200 MHz RAMDAC and 8 MByte Video memory, this controller supports resolution up to 1280x1024 and various video outputs including analog RGB, LCD, LVDS and S-Video.

Features	PVGA-1722
Function	Graphic controller
Resolution	Up to 1280x1024
Analog RGB	yes
LCD / LVDS interfaces	18-bit / 24-bit
S-Video output	yes
Rear I/Os	yes



Custom Design Services

Design your product as a fully optimized Solution

As you can understand when reading this selector guide, the embedded board industry reachs a very high level of flexibility with standard COTS products. The introduction of new mezzanine concept like COM Express modules combined with existing I/O module like PMC's or XMC's give to the embedded computer users a large freedom of choice to build its specific application from COTS boards, even for projects requiring several 100's of pieces per year.
However, when volumes exceed 1'000 pieces/year, or when environmental conditions cannot be achieved with multiple assembly; it may be necessary to choose a fully dedicated custom design. ACTIS Computer can take advantage of its wide design library by offering a safe and fast design solution for a customized embedded computer. Our large experience in SBC design will ensure a successful project at reasonable cost; therefore, please contact our custom service department for an offer.

ACTIS Computer can design your custom solution

A straightforward path to high quality Embedded Solution with experimented Engineers.

ACTIS Computer brings its 17 years experience with leading worldwide customers to build your systems.

Your Constraints

Our Skills

Processor architecture choice

You want a RISC or CISC architecture, with FPU, or more oriented to communication? You need a diskless system for rugged application and You want a static Flash memory storage, or You prefer to use bigger size S-ATA disk? Just ask ACTIS Computer, we have the solution.

Power consumption

Your application requires a low power system which can be powered by batteries, or which can operate in extended temperature environment without fan for better reliability? In this cases, ACTIS Computer will provide you dedicated solutions with processor requiring only 1-2 Watt at 400 MHz clock frequency.

Performance

If you need maximum performance while keeping your power dissipation in a reasonable limit, ACTIS Computer can offer you several solutions at more than 1 GHz which will not require exaggerated power supply and big cooling system with fan reducing your MTBF to unacceptable levels.

Your Needs

Our Solutions

Special Form Factor

You may need standard form factor boards to be integrated in a backplane compatible with VME, cPCI, PCI standard; or you prefer a standalone system based on mezzanine processor or I/O board; or you want a fully customized solution which will directly fit your enclosure? ACTIS Computer will make the exact product that you require.

Delivery Time

Of course you want your product very quickly, thanks to our integrated CAD/CAE department. Later when you will be on production we will make scheduled delivery and keep you updated on obsolescence risk, therefore you can buy your product without problems for many years.

Price Level

Our price defined in our first offer will help you to stay in your budget and to be able to make a commitment to your final customer.

When Commercial off The Shelf (C.O.T.S.) boards do not fit exact customer requirements for a specific application, it is wise to make a dedicated design to better cope with the planned project.
ACTIS Computer engineering department is very flexible in designing customized version of our boards for medium to high volume projects.

We are focusing on designs around PowerPC processor family and FPGA design, where we have a wide expertise and therefore we can insure a fast turnaround and a “State of the Art” product.

Project Definition

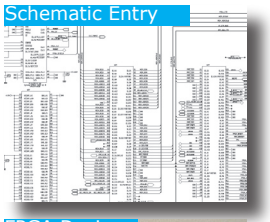
In the early stages we work closely with our customer technical department to fully understand its requirements and to propose best possible solutions to achieve thier goals.

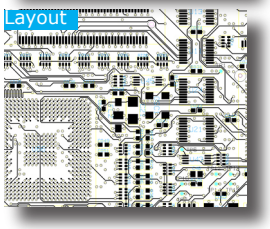
Product Design

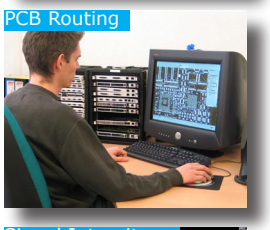
We design projects with powerful CAE and CAD tools for schematic capture and simulation, FPGA design and simulation, PCB routing with signal integrity checking, to insure a stable and reliable product that is fully documented and which can be easily modified (if required) years after the design has been completed.

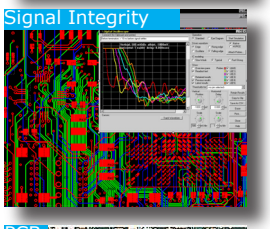
Production Phase

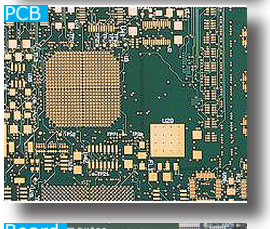
After the validation of prototypes and the completion of the application design by the customer, ACTIS Computer can produce boards in quantity as low as 50 pces/year to more than 10kpcs/year with different ISO 9001 subcontractors located in Europe or in Asia.

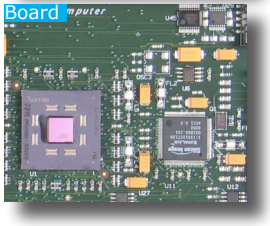




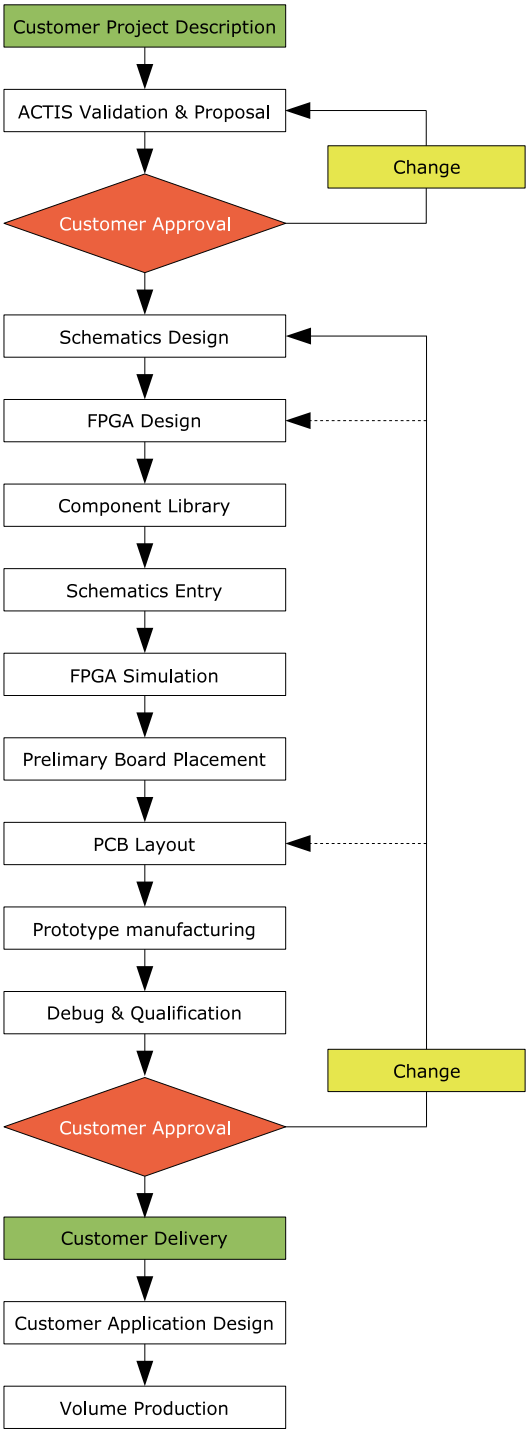








Project Design Flow



For years, embedded computer users were forced to use “hard real time OS” like PDOS, pSOS, OS-9, QNX, VxWorks, etc…
Today a lot of them no longer exist, or with the performance of the processor using clock rated in GHz instead of tens of MHz, the trend is to use generic operating systems like Windows and GNU/Linux with real time extensions.
ACTIS Computer supports all its SBC range with LINUX development package as the standard option. Thanks to the wide community of developers, and to the open source philosophy of LINUX, it’s now possible to port LINUX environment on all hardware platforms with an incredible large choice of additional drivers available from most chip manufacturers.
For more specific requirements, ACTIS Computer also supports VxWorks and on request can supply, with third-party software companies, BSP’s for LynxOS, QNX, Nucleus, etc…

U-Boot Bootloader

The open source Bootloader U-Boot is an industry recognized software. It supports a wide range of hardware architectures including the PowerPC SBCs supplied by ACTIS Computer.

U-Boot popularity is driven by a large developer’s community which maintains and writes new functions. This community includes major SOC manufacturers like AMCC and Freescale. U-Boot is fully compatible with Linux by offering a direct interface by passing arguments and resources structure to the kernel for an optimum system initialization.

Based on the latest technology, the Flat Device Tree (FDT) supports accurate system configuration and resources allocation. The FDT is dynamically defined and pass to the Linux Kernel during boot process. This approach allows a dynamic system board configuration even if a hardware modification is applied without modifying the software code.

Highlights

- Based on U-boot version 1.3+
- Fully integrated solution with GNU/Linux
- Boot capabilities from Flash, storage media and network
- Script support for auto-boot mode
- Flash device programming
- Flat Device Tree (FDT) support

GNU/Linux

Board LINUX Support Package (BSP) is the ideal platform for developers who want all the benefits of an open source software, as well as the ability to achieve rapid presence to the market.

The GNU/Linux BSP offers a complete support for the PowerPC architecture intended for embedded application. Its features target a wide area of markets, including transportation and telecommunication, process control and security, medical and military, and research.

ACTIS Computer GNU/Linux BSP is based on Kernel 2.6.26+ and provides an up-to-date software development environment.
The board support package includes a complete development environment suite based on Eclipse IDE.

Highlights

Core Features

- 2.6.26+ Kernel
- PowerPC architecture support
- Debian filesystem
- Busybox filesystem

Architecture Support

- Freescale PowerQUICC
- AMCC 4xx PowerPC family

For application requiring a Human Machine Interface (HMI), the graphics interface is based on the X.Org open source implementation of X Window system.

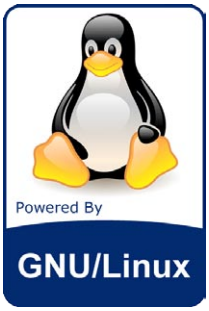
A size-optimised filesystem is available for small integrated system without compromising the software capabilities. This BusyBox based version offers a complete Linux environment into a single executable module and easily configurable to fulfil most system requirements.

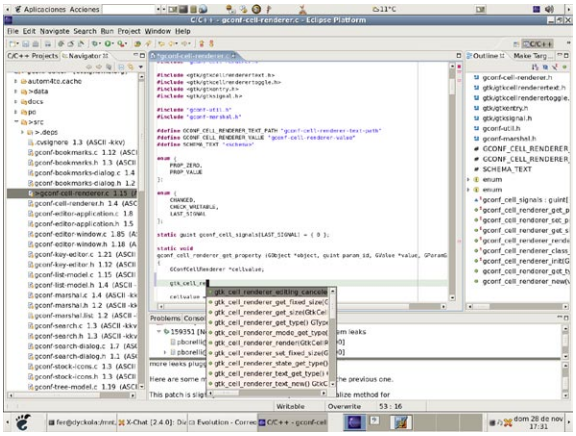
Highlights

Development Environment
- Eclipse-based IDE GNU tools chain, gdb and gcc

Enhanced I/O Support
- USB2.0
- Serial-ATA
- FPGA

Graphics Support
- Based on X.Org system
- Compatible with SM722 controller





Linux development System based on Eclipse

VxWorks

WIND RIVER

Wind River VxWorks platforms are optimized for develop and run solutions with a range of devices, from aerospace and defence applications to networking and consumer electronics, robotics and industrial applications, precision medical instruments, and car navigation and telematics systems. The platforms provide a robust foundation for companies that need to leverage their investment in proprietary intellectual property.

Highlights
- Memory protection
- Certified POSIX 100.13-2003 PSE2 confirmance
- Eclipse based IDE
- Networking: TCP, UDP, IPv4/IPv6 and PPP

The VxWorks platforms are based on the world's most widely adopted RTOS. Built on a highly scalable, deterministic, hard real-time kernel, VxWorks enables companies to scale and optimize their run-time environment using only the specific technologies required by their device.

From the smallest footprint requirement to the highest performance level, VxWorks gives developers the flexibility to build their optimal solution quickly and easily while meeting cost, quality, and functionality requirements. VxWorks supports POSIX and industry-standard protocols such as IPv6 and TIPC, ensuring maximum code portability and interoperability.

Third-Party Software Partner

ACTIS Computer has privileged partnership with software developer companies. The following third-party supports ACTIS Computer Board Level Components for embedded software applications.

decsis

DECSIS Consulting is a well recognized company active in transport and telecommunication applications. Software developments support both GNU/Linux and VxWorks environnements following customer application requirements and support qualification procedure.

Visit our on-line website as the entry point for your next system integration. You will discover our catalog with the Single Board Computer, Peripheral mezzanine module, Computer boxes and software solutions.

Technical support is available on the dedicated support section, with all the literature related to our products and including user's manual, datasheets, application notes and product change notice.

For any specific inquiries, don't hesitate to contact your ACTIS Computer local representative or our international sales offices.

For up-to-date information related to ACTIS Computer products and services, feel free to subscribe to our periodical information newsletter.
Product announcements are available for our privileged customers as a perspective view about our new board level designs and the technology overview.

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